

**We Claim:**

1. An isolated nucleic acid molecule which comprises a nucleotide sequence, the complementary sequence of which hybridizes, under stringent conditions to at least one nucleic acid molecule having a nucleotide sequence set forth at SEQ ID NO: 1, 2, 3, 4 or 5.
2. Expression vector comprising the isolated nucleic acid molecule of claim 1, operably linked to a promoter.
3. Cell line or cell strain, transformed or transfected with the isolated nucleic acid molecule of claim 1.
4. Cell line or cell strain, transformed or transfected with the expression vector of claim 2.
5. The isolated nucleic acid molecule of claim 1, which consists of a nucleotide sequences set forth at SEQ ID NO: 1, 2, 3, 4 or 5.
6. Isolated protein encoded by the isolated nucleic acid molecule of claim 1.
7. Method for determining colon cancer in a sample, comprising assaying said sample for expression of the isolated nucleic acid molecule of claim 1, presence thereof being indicative of colon cancer.

8. Method for determining colon cancer in a sample, comprising assaying said sample for a protein encoded by the isolated nucleic acid molecule of claim 1, presence of said protein being indicative of colon cancer in said sample.

9. The method of claim 8, comprising assaying said sample for a peptide derived from said protein.

10. Composition of matter useful in treating colon cancer, comprising the isolated nucleic acid molecule of claim 1, and a pharmaceutically acceptable carrier.

11. Composition of matter useful in treating colon cancer, comprising therapeutically effective amount of the expression vector of claim 2, and a pharmaceutically acceptable carrier.

12. Composition of matter useful in treating colon cancer, comprising a therapeutically effective amount of the cell line or cell strain of claim 3, and having presented on its surface, a peptide complexed to an MHC molecule to form a complex which provokes an immune response against colon cancer cells.

13. A method for treating a subject afflicted with a colon cancer or related disorder, comprising:

(i) removing an immunoreactive cell containing sample from said subject,

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(iii) introducing said cytolytic T cells to said subject in an amount sufficient to lyse said cells.

(i) identifying a gene expressed by cancer cells associated with said colon cancer or related condition, wherein said gene comprises at least one nucleotide sequence set forth in SEQ ID NOS: 1-5;

(iii) transfecting a host cell having the same molecule as identified in (ii) with said gene;

(v) introducing an amount of said cells to said subject sufficient to provoke an immune response against said cancer cells.

-19-

16. The method of claim 14, wherein said immune response comprises a T-cell response.

17. The method of claim 15, wherein said B cell response comprises production of antibodies specific to said expression product or peptide derived therefrom.

18. The method of claim 16, wherein said T-cell response comprises generation of cytolytic T-cell specific for cells presenting said peptide.

19. The method of claim 14, further comprising treating said cells to render them non-proliferative.

20. A method for treating a subject with a cancerous condition characterized by abnormal amounts of a protein, comprising:

(i) identifying a gene expressed by said abnormal cells, comprising at least one nucleotide sequence set forth in SEQ ID NOS: 1-5;

(ii) transfecting a host cell having the same MHC type as said patient expressing said gene;

(iii) culturing said transfected cells to express said gene, and;

(iv) introducing an amount of said cells to said subject sufficient to provoke an immune response against said cancerous condition.

21. The method of claim 20, further comprising treating said cells to render them non proliferative.

22. A method for treating a subject with a condition characterized by abnormal amounts of protein encoded by a nucleic acid molecule comprising a nucleotide sequence set forth in SEQ ID NO: 1, 2, 3, 4 or 5, comprising administering to said subject an amount of a cell transfected with (i) a nucleic acid molecule which codes for said protein and (ii) a nucleic acid sequence which codes for an MHC molecule which presents a peptide derived from said protein wherein said peptide is presented by cells associated with said condition, sufficient to alleviate said condition.

23. Method of claim 22, further comprising treating said cell to render it non-proliferative.

24. A method for treating a subject afflicted with a condition characterized by an abnormal amount of protein encoded by a nucleic acid molecule comprising a nucleotide sequence set forth at SEQ ID NO: 1, 2, 3, 4 or 5, comprising administering to said subject an amount of a reagent consisting essentially of non-proliferative cells having expressed on its surface a peptide characteristic of said abnormal cells in an amount sufficient to elicit an immune response thereto.

25. A method for treating a subject afflicted with a condition characterized by an abnormal amount of a protein encoded by a nucleic acid molecule comprising a nucleotide sequence set forth at SEQ ID NO: 1, 2, 3, 4 or 5, comprising administering to said subject an antibody which specifically binds to said protein or a peptide derived therefrom, said antibody being coupled to a therapeutically useful agent, in an amount sufficient to treat said condition.

26. A method for treating a subject afflicted with a condition characterized by abnormal amounts of a protein encoded by a nucleic acid molecule comprising a nucleotide sequence set forth at SEQ ID NO: 1, 2, 3, 4 or 5, comprising administering to said subject a sample of non-proliferative cells which express said protein in an amount sufficient to alleviate said condition.

27. A method for preventing onset of a condition characterized by abnormal amounts of a protein encoded by a nucleic acid molecule comprising a nucleotide sequence set forth at SEQ ID NO: 1, 2, 3, 4 or 5, in a subject comprising administering an amount of a vaccine comprising said protein and an adjuvant in an amount sufficient to prevent onset of said cancerous condition in said subject.

28. A method for preventing onset of a condition characterized by abnormal amounts of a protein encoded by a nucleic acid molecule comprising a nucleotide sequence set forth at SEQ ID NO: 1, 2, 3, 4 or 5, in a subject comprising administering an amount of a vaccine

comprising a peptide derived from said protein in an amount sufficient to prevent onset of said condition in said subject.

29. A method for preventing onset of a condition characterized by abnormal amounts of a protein encoded by a nucleic acid molecule comprising a nucleotide sequence set forth at SEQ ID NO: 1, 2, 3, 4 or 5, in a subject comprising administering an amount of a vector which comprises a gene encoding said protein to a cell which is capable of expressing said protein or presenting a peptide derived therefrom, in an amount sufficient to prevent onset of said cancerous condition in said subject.

30. A method for treating a subject afflicted with a condition characterized by abnormal amounts of a protein encoded by a nucleic acid molecule comprising a nucleotide sequence set forth at SEQ ID NO: 1, 2, 3, 4 or 5, comprising:

- (i) identifying cells from said subject which express abnormal amounts of said protein;
- (ii) isolating a sample of said cells;
- (iii) cultivating said cell, and
- (iv) introducing said cells to said subject in an amount sufficient to provoke an immune response against said cells.

31. The method of claim 30, further comprising rendering said cells non proliferative, prior to introducing them to said subject.

32. A method for treating a subject with a condition characterized by abnormal amounts of at least one protein encoded by a nucleic acid molecule comprising a nucleotide sequence set forth in any of SEQ ID NO: 1, 2, 3, 4 or 5, comprising administering to said subject a vector which comprises a sequence encoding at least one immunoreactive peptide derived from said at least one protein, to a cell capable of expressing and presenting said at least one peptide, in an amount sufficient to induce an immune response in said subject.

33. A method for following progress of a therapeutic regime designed to alleviate a condition characterized by abnormal expression of a protein encoded by a nucleic acid molecule comprising a nucleotide sequence set forth at SEQ ID NO: 1, 2, 3, 4 or 5, comprising:

(a) assaying a sample from a subject to determine level of a parameter selected from the group consisting of (i) a peptide derived from said protein, (ii) a cytolytic T cell specific for cells presenting said peptide, and (iii) an antibody which specifically binds to said peptide of said protein, at a first time period;

(b) assaying level of the parameter selected in (a) at a second period of time and comprising it to the level determined in (a) as a determination of effect of said therapeutic regime.

34. A method for treating a pathological cell condition characterized by aberrant expression of a protein encoded by a nucleic acid molecule comprising a nucleotide sequence set forth at SEQ ID NO: 1, 2, 3, 4 or 5 associated with said condition, comprising



administering to a subject in need thereof an effective amount of either: (a) a protein inhibitor, or (b) an inhibitor of gene expression of said protein.

35. The method of claim 34, wherein said protein inhibitor is an inhibiting antibody.

36. The method of claim 34, wherein said inhibitor of gene expression is an antisense molecule.

37. A composition of matter useful in stimulating an immune response to a protein encoded by a nucleic acid molecule comprising a nucleotide sequence set forth in SEQ ID NO: 1, 2, 3, 4 or 5, comprising a plurality of peptides derived from the amino acid sequence of said protein, wherein said peptides bind to one or more MHC molecules presented on the surface of cells which express an abnormal amount of said protein.

3 38. The composition of matter of claim 37, wherein at least a portion of said plurality of peptides bind to MHC molecules and elicit a cytolytic response thereto.

4 39. The composition of matter of claim 38, further comprising an adjuvant.

5 40. The composition of matter of claim 39, wherein said adjuvant is a saponin, GM-CSF, or an interleukin.

41. An isolated antibody which binds to a protein encoded by a nucleic acid molecule which comprises the nucleotide sequence of any of SEQ ID NO: 1, 2, 3, 4 or 5.

42. The isolated antibody of claim 41, wherein said antibody is a monoclonal antibody.

43. An isolated antibody which specifically binds to a peptide derived from a protein encoded by a nucleic acid molecule which comprises a nucleotide sequence set forth in any of SEQ ID NO: 1, 2, 3, 4 or 5.

44. The antibody of claim 43, wherein said antibody is a monoclonal antibody.

45. An isolated antibody which specifically binds to a complex of (i) a peptide derived from protein encoded by a nucleic acid molecule which comprises a nucleotide sequence set forth in any of SEQ ID NO: 1, 2, 3, 4 or 5 and (ii) an MHC molecule to which said peptide complexes, but does not bind to (i) or (ii) alone.

46. The antibody of claim 45, wherein said antibody is a monoclonal antibody.

47. Method for determining regression, progression or onset of a condition characterized by abnormal levels of a protein encoded by a nucleic acid molecule comprising a nucleotide sequence set forth in SEQ ID NO: 1, 2, 3, 4 or 5, comprising monitoring a

48. The method of claim 47, wherein said sample is a body fluid or effusion.

49. The method of claim 47, wherein said sample is a tissue.

50. The method of claim 47, wherein contacting said sample with an antibody which specifically binds with said protein or peptide.

51. The method of claim 50, wherein said antibody is labelled with a radioactive label or an enzyme.

52. The method of claim 50, wherein said antibody is a monoclonal antibody.

53. The method of claim 47, comprising amplifying RNA which codes for said protein.

54. The method of claim 53, wherein said amplifying comprises carrying out polymerase chain reaction.

55. The method of claim 47, comprising contacting said sample with a nucleic acid molecule which specifically hybridizes to a nucleic acid molecule which codes for or expresses said SCP protein.

56. The method of claim 47, comprising assaying said sample for said peptide.